Research Report I 83-1
September 1984

Insurance Losses
Personal Injury Protection Coverages

PASSENGER CARS, VANS, PICKUPS, AND UTILITY VEHICLES

1981 — 1983 MODELS

Highway
Loss
Data
Institute

Watergate 600, Washington, D.C. 20037

Insurance Losses
Personal Injury Protection Coverages

PASSENGER CARS, VANS, PICKUPS, AND UTILITY VEHICLES

1981-1983 MODELS

Research Report HLDI I 83-1
September, 1984

Highway Loss Data Institute
Watergate Six Hundred
Washington, D.C. 20037

Copyright © 1984 by the Highway Loss Data Institute

(Permission to quote from or to reproduce material from this publication is granted when due acknowledgement is made.)

ISSN 0734-9017

Highway Loss Data Institute

The membership of the Highway Loss Data Institute Board of Directors and the Technical Resource Committee represents insurance companies that are supplying data to HLDI. Financial support for HLDI is provided through the Insurance Institute for Highway Safety, which in turn is supported by most automobile insurers either directly or through their trade associations.

BOARD OF DIRECTORS

C. A. Bryan, Chairman
United Services Automobile Association

M. Albaum
Prudential Property and Casualty Insurance Company

H. Cameron
The Travelers Insurance Companies

J.B. Conners
Liberty Mutual Insurance Company

D. Fergusson
Nationwide Mutual Insurance Company

D. Messmer
Government Employees Insurance Company

P. Simoneau
Aetna Life and Casualty

W. W. Sorenson
State Farm Mutual Automobile Insurance Company

J. S. Trees
Allstate Insurance Company

W. Haddon, Jr., *ex officio*
Highway Loss Data Institute

TECHNICAL RESOURCE COMMITTEE

J. S. Trees, Chairman
Allstate Insurance Company

M. Albaum
Prudential Property and Casualty Insurance Company

C. A. Bryan
United Services Automobile Association

R. O. Elder
Highway Loss Data Institute

D. Fergusson
Nationwide Mutual Insurance Company

G. C. Klingman
The Travelers Insurance Companies

A. Ledbetter
Government Employees Insurance Company

R. Muleski
Liberty Mutual Insurance Company

B. O'Neill
Highway Loss Data Institut

P. Simoneau
Aetna Life and Casualty

W. W. Sorenson
State Farm Mutual Automobil Insurance Company

Summary

This Highway Loss Data Institute (HLDI) report presents the frequency of claims for injuries to occupants of 1981, 1982, and 1983 model year passenger cars, vans, pickup trucks, and utility vehicles. Claim frequency results are shown separately for all medical claims and for those claims for which the medical losses exceeded $250, $500, and $1,000.

Principal Findings

Passenger cars

- The cars with the best injury experience were predominantly large station wagons and regular four-door models. No regular two-door models were among the cars with the best injury experience. Twelve cars had at least one claim frequency result that was more than 35 percent better than the result for all cars combined (Table 2, page 5). Nine of these cars with the best injury experience were manufactured in the United States, all of them by General Motors.

- The cars with the worst injury loss experience were predominantly small two-door models. Fifteen cars had at least one claim frequency result that was more than 35 percent worse than the result for all cars combined (Table 3, page 5). Twelve of these fifteen cars were imported models, eleven of them from Japan.

- Among the cars with the best injury experience, the four-door Oldsmobile Delta 88 had the lowest overall claim frequency (41 percent below average) and the lowest frequency of claims exceeding $1,000 (also 41 percent below average). The Oldsmobile Cutlass station wagon had the lowest frequency of claims greater than $250 (50 percent below average) and the lowest frequency of claims greater than $500 (56 percent below average).

- Among the cars with the worst injury loss experience, the two-door Pontiac 1000 had the highest overall injury claim frequency (56 percent above average).

- In general, as car size decreased the frequency of injury claims increased (Figure 1, page 13). Station wagons had the lowest overall injury claim frequencies in each size class and four-door models had lower claim frequencies than two-door models of the same size.

Vans, Pickups, Utility Vehicles

- Vans, pickups, and utility vehicles as a group had better injury results than the average results for passenger cars.

- Large and intermediate utility vehicles, standard-sized pickups, and vans had the best injury experience ranging from less than one-half to about two-thirds the average for passenger cars (Figure 2, page 15).

- Small utility vehicles had the worst injury experience.

- The Ford E-150 Club Wagon, Chevrolet K20 pickup, Ford F-250 pickup, and Jeep Wagoneer all had overall injury claim frequencies less than one-half the all-passenger-car result.

- The Toyota four-wheel drive standard bed pickup truck had the worst injury experience of all pickups reported, and the Jeep CJ-5 had the worst results of all utility vehicles.

- Injury claim frequencies were closely related to vehicle size for pickup trucks and utility vehicles with the larger vehicles having lower claim frequencies.

Table of Contents

Page

Summary v

List of Figures vii

List of Tables viii

Introduction 1

Results and Discussion 3

Passenger Cars 3

Vans, Pickups, and Utility Vehicles 14

Appendix A - Specifications of Injury Coverages 18

Appendix B - Method of Data Analysis 19

Appendix C - Definitions 22

Appendix D - Vehicle Series Designations 24

Part A: Passenger Cars 24

Part B: Vans, Pickups, and Utility Vehicles 28

List of Publications 29

List of Figures

Page

Figure 1 Personal Injury Protection Coverages, Relative Claim Frequencies, 1981 - 1983 Model Year Passenger Cars 13

Figure 2 Personal Injury Protection Coverages, Relative Claim Frequencies, 1981 - 1983 Model Year Vans, Pickups, and Utility Vehicles 15

List of Tables

Page

Table 1 Personal Injury Protection Coverages, Claim Frequencies by Model Year and Size of Claim 3

Table 2 1981 - 1983 Passenger Cars With The Best Injury Loss Experience, Relative Injury Claim Frequencies - Personal Injury Protection Coverages 5

Table 3 1981 - 1983 Passenger Cars With The Worst Injury Loss Experience, Relative Injury Claim Frequencies - Personal Injury Protection Coverages 5

Table 4 Relative Claim Frequency By Size of Claim, Personal Injury Protection Coverages, 1981 - 1983 Passenger Cars 6

Table 5 Relative Claim Frequency By Size of Claim, Personal Injury Protection Coverages, 1981 - 1983 Vans, Pickups, and Utility Vehicles 16

Introduction

The Highway Loss Data Institute (HLDI) is a nonprofit, public service organization that gathers, processes, and publishes insurance data concerned with human and economic losses associated with motor vehicle use, especially with the ways such losses vary among different kinds of vehicles.

This report compares the frequencies of claims for injuries to occupants of 1981 through 1983 model year passenger cars, vans, pickup trucks, and utility vehicles. In addition to the frequencies of all claims, frequencies are given separately for claims for which the medical payments exceeded $250, $500, and $1,000. The results are given for individual vehicle series as well as for various vehicle groupings based on body style and vehicle size.

In calculating injury claim frequencies, all injuries in a crash-involved car resulting in claims for medical expenses made under personal injury protection insurance coverages are counted as a single claim. A description of these first-party coverages, which principally insure against medical losses to occupants of the insured cars themselves, is given in Appendix A. The data analysis methods used in the preparation of this report are detailed in Appendix B. Definitions are given in Appendix C, and Appendix D contains a complete list of the vehicles that appear in this report. The data used were supplied by 11 insurers: Aetna, Allstate, GEICO, Kemper, Liberty Mutual, Nationwide, Prudential, Safeco, State Farm, Travelers, and USAA.

This report is based on injury coverages and injury claims involving 1981 through 1983 models in the period from their introductions through December 1983. It does not include the results for vehicles discontinued prior to the 1983 model year.

It is intended that the dissemination of this and other HLDI reports will contribute to research into ways for reducing vehicle-related damage to people and property, and provide the public with information relating to the differences in the crash damage produced by different kinds of vehicles.

Results and Discussion

This report presents injury claim frequency results for 1981-1983 model year vehicles. Results are presented in two sections: the first summarizes the results for passenger cars and the second for vans, pickup trucks, and utility vehicles. The frequency of all injury claims and the frequencies of claims with medical payments in excess of $250, $500, and $1,000 are shown for those vehicles with sufficient exposure.* The results for the larger medical claims indicate the frequency of occurrence of increasingly severe injuries. Each claim frequency result, whether for passenger cars, vans, pickups, or utility vehicles, is presented in relative terms, with 100 representing the claim frequency for *all passenger cars combined* in each claim size category.

The relative injury experience of particular vehicles does not change substantially from model year to model year providing that the basic design of the vehicle remains essentially unchanged. For this reason and because substantial amounts of exposure are needed to produce reliable injury claim frequency results, the data for model years 1981 through 1983 were combined for those vehicles with basic designs that remained unchanged. Vehicle series that were discontinued or redesigned prior to 1983 (such as the Datsun 210 and Ford Granada, which were both produced only through model year 1982) are not included in the report. Newly introduced vehicles (such as the Chevrolet Cavalier in 1982 and Renault Alliance in 1983) are included. For each vehicle series and each vehicle subgroup, a separate relative claim frequency was calculated for each model year. The aggregated result was then obtained by weighting these relative claim frequencies by the applicable exposure for each model year. For additional explanation of this procedure, see Appendix B.

Passenger Cars

The total exposure amassed by passenger cars of the three model years included in this report amounted to over five million insured vehicle years. Table 1 presents the claim frequencies by size of claim for each model year. It shows that the frequencies of claims decreased rapidly with increasing medical costs. The frequency of claims exceeding $250 was approximately one-half the overall claim frequency, the frequency of claims exceeding $500 was

TABLE 1
Personal Injury Protection Coverages
Claim Frequencies by Model Year and Size of Claim

Model Year	Total Exposure (Insured Vehicle Years)	Claim Frequencies Per 1,000 Insured Vehicle Years			
		All Claims	>$250	>$500	>$1,000
1983	787,866	19.2	9.2	6.3	3.9
1982	1,808,872	18.2	9.0	6.4	4.2
1981	2,887,564	17.1	8.6	6.1	4.1

*The exposure thresholds for reporting results were 5,000 insured vehicle years for the all claim results, 10,000 years for the greater than $250 results, 15,000 years for the greater than $500 results, and 25,000 years for the greater than $1,000 results. The results shown in this report were standardized to remove the effects due to differences in the mix of operator age group among different vehicles. Standardizing for this nonvehicle factor ensures that its mix is the same for each result. It should be noted that other nonvehicle factors could vary among different vehicles and that any effects resulting from such factors have not necessarily been eliminated from the results presented in this report. The standardization procedure is described in detail in Appendix B.

about one-third the overall frequency, and the frequency of claims greater than $1,000 was less than one-fourth the overall frequency.

The total dollars paid out, however, were dramatically influenced by the more expensive claims. For example, claims exceeding $250, although representing less than half of all claims, accounted for nearly 96 percent of the total dollars for medical payments. Claims exceeding $500 accounted for 91 percent of the total dollars, and claims over $1,000 accounted for more than 83 percent of the total dollars.

Table 2 summarizes the individual 1981 through 1983 models with the best injury loss experience. Any individual series with a claim frequency more than 35 percent better (a relative claim frequency of less than 65) than the all-car result for any of the claim size categories is listed. The cars are ranked in increasing order of their overall relative claim frequency. Each individual relative claim frequency result that was less than 65 is shown in bold print.

The 12 vehicle series listed in Table 2 are those with at least one claim frequency result that was more than 35 percent better than average. These cars had the best injury loss experience among the 175 vehicle series from model years 1981 through 1983 with sufficient exposure for calculating the comparisons. (See Table 4 for detailed listings.) Most of the three regular four-door models, six station wagons, and three specialty models among the cars with the best injury loss experience are large cars. There were no regular two-door models on the list. All but three of the 12 models were manufactured in the United States by General Motors.

The four-door Oldsmobile Delta 88 had the lowest overall relative claim frequency (59) and the lowest relative frequency (59) of claims exceeding $1,000. The Oldsmobile Cutlass station wagon had the lowest relative claim frequency (50) of claims greater than $250 and the lowest relative frequency (44) of claims exceeding $500. (Vehicle series with overall claim frequencies lower than some of those listed in Table 2, but without relative claim frequencies less than 65 for any of the claim size categories, are shown in Table 4.)

Table 3 summarizes in similar fashion the 1981 through 1983 models with the worst injury loss experience. Any individual series with a claim frequency that was more than 35 percent worse (a relative claim frequency of more than 135) than the all-car result for any of the claim size categories is listed. Cars are listed in decreasing order of their overall relative claim frequency and results greater than 135 are shown in bold print.

Most of the 15 cars listed in Table 3 are small, regular two-door models. There were no station wagons or sports or specialty models on the list of cars with the worst injury loss experience. All but three of the cars in Table 3 are imported models, and all but one of them are imported from Japan.

The two-door Pontiac 1000 had the highest overall relative claim frequency (156). The Dodge Challenger had the highest relative frequency (154) of claims exceeding $250, and the two-door Chevrolet Chevette had the highest relative frequency (146) of claims greater than $500. Of the cars with sufficient exposure to report a result for claims exceeding $1,000, the two-door Plymouth Colt had the highest relative claim frequency (148).

Table 4 presents relative injury claim frequency results for all of the 1981 through 1983 models with sufficient exposure. Results are shown for individual series and for each body style and car size group. The individual series results in Table 4 are listed within each group in ascending sequence of their overall relative claim frequencies.

The results in Table 4 indicate that, in general, cars with smaller wheelbases had higher injury losses than cars with larger wheelbases. Table 4 also shows that there were large differences in the loss experience of cars in the same body style and car size categories. For example, the overall relative claim frequencies for small subcompact two-door models ranged from a low of 75 for the Volkswagen Jetta to a high of 156 for the Pontiac 1000, which is more than a two-fold difference.

Figure 1 (page 13) shows the overall relative claim frequencies by body style and car size group. There is a clear pattern of improving loss experience in each body style group associated with increasing car size. Station wagons had the lowest overall injury claim frequencies in each size class and four-door models consistently had lower claim frequencies than two-door models of the same size.

(Text continues on page 14)

TABLE 2
1981-1983 Passenger Cars With the Best Injury Loss Experience
Relative Injury Claim Frequencies - Personal Injury Protection Coverages

Make and Series		Exposure (Insured Vehicle Years)	Relative Claim Frequencies By Size of Claim			
			All	>$250	>$500	>$1,000
Oldsmobile	Delta 88-4 Dr.	76,258	59	58	58	59
Oldsmobile	Cutlass-S.W.	19,665	60	50	44	
Oldsmobile	Ninety Eight-4 Dr.	47,370	60	71	74	78
Oldsmobile	Custom Cruiser	13,287	61	60		
Mercedes Benz	300SD	9,400	61			
Buick	Regal-S.W.	12,129	62	55		
Buick	LeSabre-4 Dr.	43,181	62	62	62	69
Chevrolet	Caprice-S.W.	22,053	65	59	60	
Oldsmobile	Toronado	24,162	66	60	61	
Mercedes Benz	240D	10,919	67	57		
Pontiac	Bonneville-S.W.	19,448	69	63	60	
Volvo	245-S.W.	14,262	70	58		

TABLE 3
1981-1983 Passenger Cars With the Worst Injury Loss Experience
Relative Injury Claim Frequencies - Personal Injury Protection Coverages

Make and Series		Exposure (Insured Vehicle Years)	Relative Claim Frequencies By Size of Claim			
			All	>$250	>$500	>$1,000
Pontiac	1000-2 Dr.	17,725	156	149	145	
Nissan	Pulsar-2 Dr.*	6,002	148			
Dodge	Colt-2 Dr.	27,910	148	145	145	145
Plymouth	Sapporo	11,268	145	150		
Renault	LeCar-2 Dr.	7,080	144			
Chevrolet	Chevette-2 Dr.	100,964	142	148	146	143
Subaru	Hardtop	16,884	141	145	143	
Nissan	Sentra-4 Dr.**	12,088	140	153		
Toyota	Corolla-2 Dr.	110,874	140	147	145	145
Plymouth	Colt-2 Dr.	27,610	139	152	141	148
Dodge	Challenger	11,213	138	154		
Toyota	Starlet	23,095	135	141	138	
Toyota	Corolla-4 Dr.	45,280	132	136	140	137
Datsun	200SX	49,721	132	132	135	136
Chevrolet	Cavalier-2 Dr.**	28,108	129	126	132	136

* 1983 models only
** 1982 and 1983 models only

TABLE 4
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages — 1981-1983 Passenger Cars

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
81-83	**ALL**	**ALL**	**5484302**	**100**	**100**	**100**	**100**
		TWO-DOOR MODELS					
81-83	**SMALL SUBCOMPACT**		**784252**	**128**	**129**	**127**	**125**
81-83	VOLKSWAGEN	JETTA	5064	75			
81-83	VOLKSWAGEN	RABBIT	48273	98	95	97	98
81-83	SUBARU	HATCHBACK 4WD	5139	110			
81-83	MAZDA	GLC	26932	111	107	105	101
81-83	MERCURY	LYNX	44055	120	122	124	118
81-83	HONDA	CIVIC	67728	121	113	111	103
81-83	FORD	ESCORT	133481	121	121	120	113
82-83	NISSAN	SENTRA	28379	122	123	117	115
81-83	SUBARU	HATCHBACK	15847	125	122	118	
81-83	AMERICAN	SPIRIT LIFTBACK	22088	127	120	117	
81-83	DATSUN	200SX	49721	132	132	135	136
83	TOYOTA	TERCEL	8056	133			
81-83	TOYOTA	STARLET	23095	135	141	138	
81-83	PLYMOUTH	COLT	27610	139	152	141	148
81-83	TOYOTA	COROLLA	110874	140	147	145	145
81-83	CHEVROLET	CHEVETTE	100964	142	148	146	143
81-83	RENAULT	LE CAR	7080	144			
81-83	DODGE	COLT	27910	148	145	145	145
83	NISSAN	PULSAR	6002	148			
81-83	PONTIAC	1000	17725	156	149	145	
81-83	**SUBCOMPACT**		**470065**	**118**	**119**	**119**	**119**
81-83	SAAB	900	5319	77			
81-83	AMERICAN	EAGLE 50 LIFTBACK	11628	89	93		
82-83	CHRYSLER	LE BARON	10582	94	90		
81-83	AUDI	4000	5181	97			
82-83	HONDA	ACCORD	34120	102	102	104	103
82-83	DODGE	400	6704	103			
81-83	DODGE	ARIES	33813	104	106	108	112
82-83	NISSAN	STANZA	7381	106			
81-83	PLYMOUTH	RELIANT	42182	112	109	110	102
81-83	FORD	MUSTANG	103257	121	125	123	125
81-83	MERCURY	CAPRI	27200	121	123	124	134
82-83	TOYOTA	CELICA	45458	123	129	131	129
81-83	PLYMOUTH	HORIZON	45066	126	121	119	118
81-83	DODGE	OMNI	38981	132	124	126	125
83	RENAULT	ALLIANCE	6816	133			
81-83	DODGE	CHALLENGER	11213	138	154		

(See footnotes on page 12)

TABLE 4 (contd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages — 1981-1983 Passenger Cars

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
			TWO-DOOR MODELS (CONTD)				
81-83	SUBARU	HARDTOP	16884	141	145	143	
81-83	PLYMOUTH	SAPPORO	11268	145	150		
81-83	**SMALL COMPACT**		**264521**	**105**	**105**	**103**	**103**
81-83	BUICK	SKYLARK	41978	94	95	95	88
81-83	OLDSMOBILE	OMEGA	24859	94	97	96	
82-83	OLDSMOBILE	CIERA	9192	95			
82-83	BUICK	CENTURY	5637	95			
82-83	CHEVROLET	CELEBRITY	6079	96			
81-83	FORD	FUTURA	24471	104	106	96	
81-83	CHEVROLET	CITATION	52653	104	105	96	97
81-83	PONTIAC	PHOENIX	20558	106	103	104	
82-83	PONTIAC	2000	17376	111	102	94	
81-83	VOLVO	242	9453	113			
82-83	BUICK	SKYHAWK	9554	116			
81-83	MERCURY	ZEPHYR	6335	121			
82-83	CHEVROLET	CAVALIER	28108	129	126	132	136
81-83	**COMPACT**		**340370**	**88**	**91**	**92**	**93**
81-83	BUICK	REGAL	158495	88	91	94	95
81-83	OLDSMOBILE	CUTLASS	181875	88	91	90	91
81-83	**LARGE**		**94724**	**75**	**81**	**86**	**86**
81-83	FORD	CROWN VICTORIA	10276	66	73		
81-83	OLDSMOBILE	DELTA 88	35087	69	70	73	73
81-83	OLDSMOBILE	NINETY EIGHT	9892	72			
81-83	BUICK	LE SABRE	17119	79	87	97	
81-83	BUICK	ELECTRA	6887	83			
81-83	CHEVROLET	CAPRICE	9066	85			
81-83	MERCURY	GRAND MARQUIS	6398	96			

(See footnotes on page 12)

TABLE 4 (contd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages — 1981-1983 Passenger Cars

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
			FOUR-DOOR MODELS				
81-83	**SMALL SUBCOMPACT**		**265000**	**114**	**113**	**113**	**115**
81-83	VOLKSWAGEN	JETTA	13965	85	84		
81-83	VOLKSWAGEN	RABBIT	62661	92	86	82	84
82-83	FORD	ESCORT	36187	113	114	109	110
82-83	MERCURY	LYNX	9733	113			
81-83	HONDA	CIVIC	37902	114	116	116	122
81-83	MAZDA	GLC	20694	122	114	103	
81-83	ISUZU	T-CAR/I-MARK	7629	128			
83	TOYOTA	TERCEL	6098	132			
81-83	TOYOTA	COROLLA	45280	132	136	140	137
82-83	NISSAN	SENTRA	12088	140	153		
81-83	**SUBCOMPACT**		**534260**	**112**	**109**	**108**	**106**
81-83	SAAB	900	5343	69			
82-83	HONDA	ACCORD	46629	86	80	87	92
82-83	CHRYSLER	LE BARON	15728	87	82	83	
81-83	AUDI	4000	8847	97			
81-83	RENAULT	18I	5147	100			
81-83	DODGE	ARIES	48971	104	98	95	91
81-83	PLYMOUTH	RELIANT	62292	104	100	92	93
82-83	NISSAN	STANZA	18415	110	108	106	
81-83	PLYMOUTH	HORIZON	56819	111	101	105	102
81-83	DODGE	OMNI	43893	113	106	101	104
83	RENAULT	ALLIANCE	9639	123			
81-83	SUBARU	DL/GL SEDAN	26834	127	129	129	126
81-83	PONTIAC	1000	24938	127	135	130	
81-83	CHEVROLET	CHEVETTE	152636	127	126	125	122
81-83	**SMALL COMPACT**		**614542**	**95**	**92**	**91**	**90**
82-83	BUICK	CENTURY	27016	83	73	79	80
82-83	OLDSMOBILE	CIERA	28398	86	78	74	75
81-83	BUICK	SKYLARK	90132	87	81	78	80
81-83	OLDSMOBILE	OMEGA	50218	90	81	85	85
82-83	CHEVROLET	CELEBRITY	23852	91	85	79	
81-83	TOYOTA	CRESSIDA	22755	91	107	120	
81-83	VOLVO	244	24141	91	94	105	
82-83	PONTIAC	6000	16086	92	86	85	
81-83	PONTIAC	PHOENIX	35280	94	87	86	82

(See footnotes on page 12)

TABLE 4 (contd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages — 1981-1983 Passenger Cars

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
			FOUR-DOOR MODELS (CONTD)				
81-83	CHEVROLET	CITATION	131215	97	92	90	89
83	FORD	LTD	7228	97			
82-83	PONTIAC	2000	14054	104	96		
81-83	FORD	FUTURA	46213	106	103	100	96
82-83	CHEVROLET	CAVALIER	27789	109	121	113	108
81-83	DATSUN	810	26431	113	121	125	122
81-83	MERCURY	ZEPHYR	14582	115	116		
82-83	BUICK	SKYHAWK	6945	115			
81-83	**COMPACT**		**297432**	**82**	**78**	**77**	**78**
81-83	OLDSMOBILE	CUTLASS	82233	76	69	70	70
81-83	BUICK	REGAL	67129	78	74	73	70
81-83	PONTIAC	BONNEVILLE	59812	79	78	78	83
81-83	PEUGEOT	505	7966	85			
81-83	CHEVROLET	MALIBU	62902	91	88	88	89
81-83	AMERICAN	CONCORD	14362	105	98		
81-83	**LARGE**		**385337**	**67**	**69**	**72**	**73**
81-83	OLDSMOBILE	DELTA 88	76258	59	58	58	59
81-83	OLDSMOBILE	NINETY EIGHT	47370	60	71	74	78
81-83	BUICK	LE SABRE	43181	62	62	62	69
81-83	MERCURY	GRAND MARQUIS	32364	66	67	67	67
81-83	BUICK	ELECTRA	30177	69	73	78	87
82-83	CHRYSLER	NEW YORKER 5TH AVE	24929	69	75	79	
81-83	FORD	CROWN VICTORIA	40200	69	76	77	81
81-83	DODGE	DIPLOMAT	5979	75			
81-83	CHEVROLET	CAPRICE	60748	76	79	81	77
81-83	CHEVROLET	IMPALA	21892	76	75	80	

(See footnotes on page 12)

TABLE 4 (contd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages — 1981-1983 Passenger Cars

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
			STATION WAGONS				
81-83	**SMALL SUBCOMPACT**		**181458**	**96**	**91**	**90**	**87**
81-83	MERCURY	LYNX	21206	86	79	71	
81-83	FORD	ESCORT	81220	93	87	89	82
82-83	NISSAN	SENTRA	10884	99	93		
81-83	HONDA	CIVIC	25278	100	92	90	90
81-83	MAZDA	GLC	7090	102			
81-83	TOYOTA	COROLLA	32134	106	103	104	106
81-83	**SUBCOMPACT**		**140746**	**93**	**88**	**87**	**86**
81-83	DODGE	ARIES	31537	87	87	83	77
81-83	PLYMOUTH	RELIANT	40364	90	75	76	74
81-83	SUBARU	DL/GL 4WD	25662	97	101	103	95
81-83	SUBARU	DL/GL	36438	98	97	94	99
81-83	**SMALL COMPACT**		**53719**	**81**	**73**	**71**	**70**
81-83	VOLVO	245	14262	70	58		
82-83	PONTIAC	2000	5416	85			
82-83	CHEVROLET	CAVALIER	17606	87	82	86	
81-83	DATSUN	810	7377	90			
81-83	**COMPACT**		**108773**	**72**	**67**	**64**	**66**
81-83	OLDSMOBILE	CUTLASS	19665	60	50	44	
81-83	BUICK	REGAL	12129	62	55		
81-83	PONTIAC	BONNEVILLE	19448	69	63	60	
81-83	AMERICAN	EAGLE 30	13003	75	73		
81-83	CHEVROLET	MALIBU	34579	77	75	74	74
81-83	AMERICAN	CONCORD	9950	95			
81-83	**LARGE**		**59043**	**65**	**63**	**61**	**65**
81-83	OLDSMOBILE	CUSTOM CRUISER	13287	61	60		
81-83	CHEVROLET	CAPRICE	22053	65	59	60	
81-83	FORD	CROWN VICTORIA	11047	66	72		
81-83	MERCURY	GRAND MARQUIS	5467	68			

(See footnotes on page 12)

TABLE 4 (cont'd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages — 1981-1983 Passenger Cars

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
		SPORTS & SPECIALTY					
81-83	**SMALL SUBCOMPACT**		**125961**	**107**	**113**	**113**	**116**
81-83	VOLKSWAGEN	RABBIT CONVERTIBLE	6654	95			
81-83	MAZDA	RX-7	37651	101	97	92	97
81-83	DATSUN	280ZX	31382	108	123	124	128
82-83	MERCURY	LN7	9691	110			
82-83	FORD	EXP	30154	123	126	127	125
81-83	**SUBCOMPACT**		**158431**	**104**	**110**	**115**	**120**
81-83	CHEVROLET	CORVETTE	21224	93	108	113	
81-83	BMW	320I	19927	93	102	105	
81-83	DATSUN	280ZX 2+2	13679	108	117		
82-83	PONTIAC	FIREBIRD	33072	112	114	115	121
82-83	CHEVROLET	CAMARO	55542	113	121	126	132
81-83	**SMALL COMPACT**		**54995**	**89**	**95**	**97**	**104**
81-83	AUDI	5000	16528	84	89	100	
82-83	CADILLAC	CIMARRON	10255	88	105		
83	FORD	THUNDERBIRD	7310	92			
82-83	TOYOTA	CELICA SUPRA	10929	98	103		
81-83	**COMPACT**		**242933**	**92**	**99**	**101**	**101**
82-83	LINCOLN	CONTINENTAL	5098	65			
81-83	MERCEDES	240D	10919	67	57		
81-83	MERCEDES	300D	10492	69	72		
81-83	PONTIAC	GRAND PRIX	100334	90	98	96	95
81-83	CHEVROLET	MONTE CARLO	111368	100	109	115	114
81-83	**LARGE**		**307672**	**75**	**82**	**87**	**91**
81-83	MERCEDES	300SD	9400	61			
81-83	OLDSMOBILE	TORONADO	24162	66	60	61	
81-83	CADILLAC	DE VILLE 4D	43768	67	72	81	87
81-83	LINCOLN	MARK VI 2D	9400	68			
81-83	LINCOLN	TOWN CAR	18697	72	83	84	
81-83	CADILLAC	SEVILLE	15634	72	75	78	
81-83	BUICK	RIVIERA	34212	73	73	77	85
81-83	CADILLAC	BROUGHAM 4D	18659	78	91	94	

(See footnotes on page 12)

TABLE 4 (contd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages — 1981-1983 Passenger Cars

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
		SPORTS & SPECIALTY (CONTD)					
81-83	CADILLAC	BROUGHAM 2D	5461	79			
81-83	CHRYSLER	CORDOBA	15592	79	90	86	
81-83	CADILLAC	ELDORADO	39933	80	100	106	112
81-83	CADILLAC	DE VILLE 2D	48750	84	92	100	99
81-83	LINCOLN	MARK VI 4D	8437	86			
81-83	DODGE	MIRADA	7315	112			

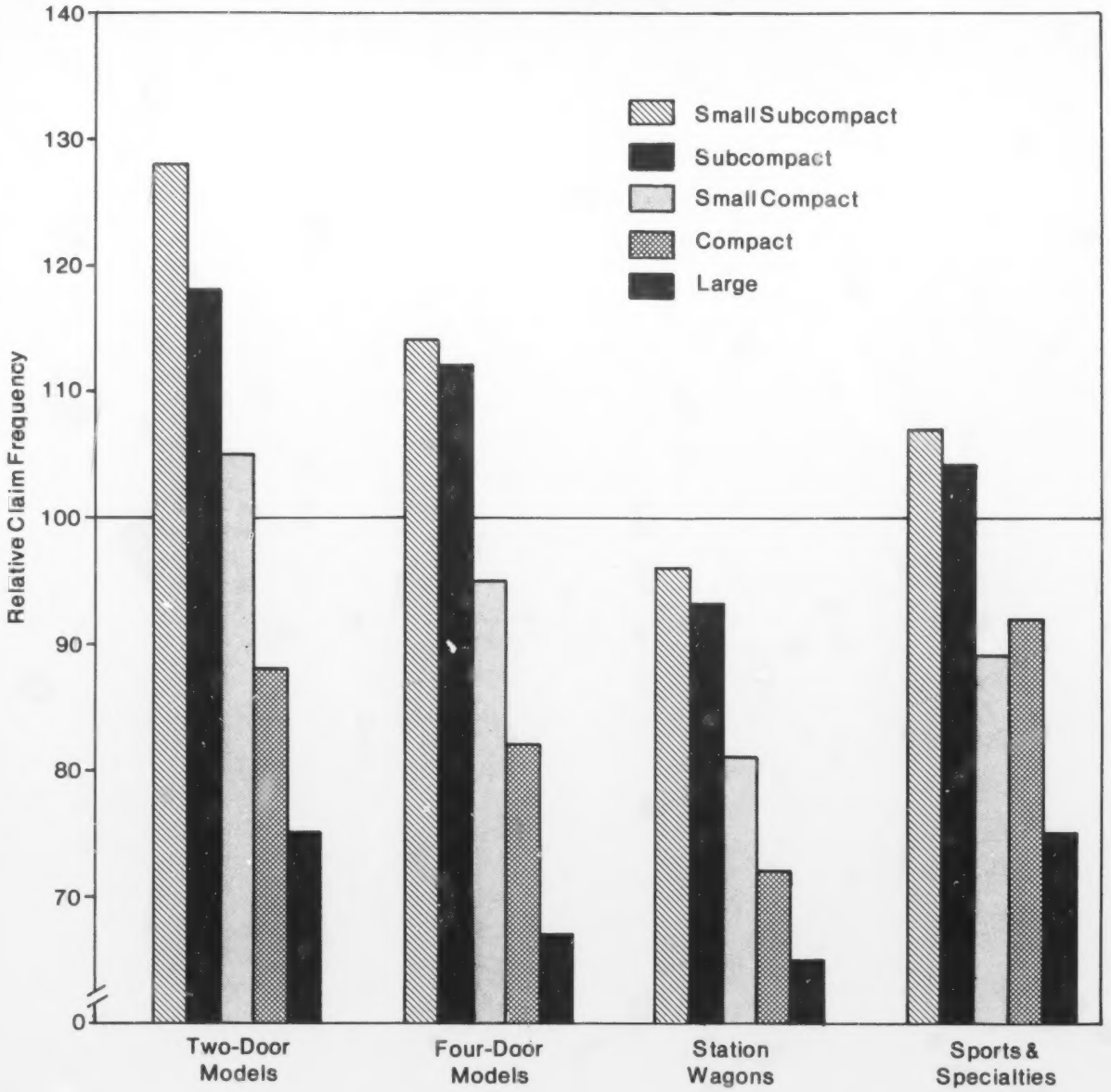
Results are standardized to the distribution:

Youthful Operator	No Youthful Operator
10%	90%

Minimum Exposure requirements for reporting:

All Claims	—	5,000 Vehicle Years
Claims > $250	—	10,000 Vehicle Years
Claims > $500	—	15,000 Vehicle Years
Claims > $1000	—	25,000 Vehicle Years

FIGURE 1
Personal Injury Protection Coverages
Relative Claim Frequencies
1981-1983 Model Year Passenger Cars



Vans, Pickups, and Utility Vehicles

This section presents injury claim frequency results for 1981-1983 model year vans, pickups, and utility vehicles. The results for pickups are presented for small and standard pickups. Small pickups are defined as those with curb weight of less than 3,000 pounds. The utility vehicle results are divided into three groups based on wheelbase: small utility vehicles are those with wheelbases less than 100 inches, intermediate utility vehicles are those with wheelbases in the range 100 to 120 inches, and large utility vehicles are those with wheelbases exceeding 120 inches.

The results for vans, pickups, and utility vehicles are presented in relative terms with the value 100 corresponding to the result for *all passenger cars* combined in each claim size category. Thus, the value 64 for the overall relative claim frequency of all 1981-1983 model year vans indicates a claim frequency result that was 36 percent better than the result for all 1981-1983 model year passenger cars.

The total exposure for vans, pickups, and utility vehicles represented in the three model years included in this report amounted to more than 800,000 insured vehicle years. Figure 2 displays these results by vehicle group and by size of claim. The best results were for large and intermediate utility vehicles, standard pickups, and vans, which ranged from less than one-half to about two-thirds the result for all passenger cars. Small utility vehicles were the only group with claim frequencies that were higher than the all-passenger-car results. (The Jeep CJ-5 and CJ-7 models contributed over 98 percent of the exposure to this group of vehicles.)

Table 5 presents relative injury claim frequency results for all of the 1981 through 1983 model year vans, pickups, and utility vehicles with sufficient exposure. Results are shown for individual series and for each vehicle group. Within each vehicle group, the individual series are listed in ascending sequence of their overall relative claim frequencies.

As Table 5 shows, the vehicles with the lowest overall injury claim frequencies were the Ford E-150 Club Wagon; the Chevrolet K20 and Ford F-250, both of which are standard-sized pickup trucks; and the Jeep Wagoneer, which is an intermediate-sized utility vehicle. Their claim frequencies were less than one-half the all-passenger-car result. Only the Jeep CJ-5 and the Toyota pickup trucks had results that were worse than those for all passenger cars.

For pickup trucks and utility vehicles, there was a very definite relationship between vehicle size and injury claim frequencies. Every injury claim frequency result reported for standard pickups was lower than any reported for small pickups; this was also true for intermediate- versus small-sized utility vehicles.

FIGURE 2
Personal Injury Protection Coverages
Relative Claim Frequencies
1981-1983 Model Year Vans, Pickups, and Utility Vehicles

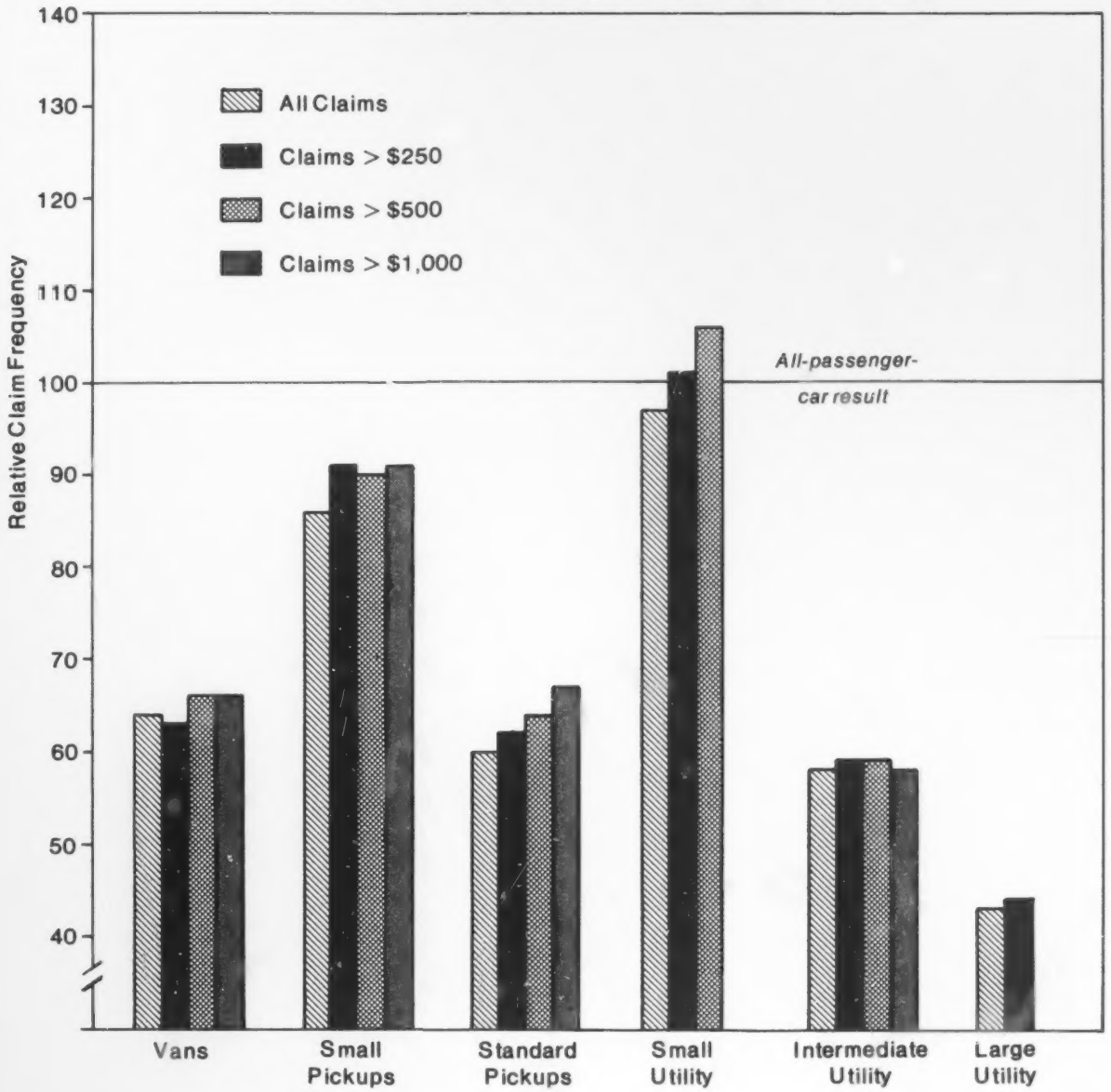


TABLE 5
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages —
1981-1983 Vans, Pickups, and Utility Vehicles

MODEL YEARS	MAKE	SERIES	EXPOSURE	SIZE OF CLAIM ALL	>$250	>$500	>$1000
		VANS					
81-83	**ALL VANS**		**133267**	**64**	**63**	**66**	**66**
81-83	FORD	E-150 CLUB WAGON (1/2-3/4T)	7613	40			
81-83	DODGE	B250 WAGON (3/4T)	5245	51			
81-83	VOLKSWAGEN	VANAGON	5432	53			
81-83	CHEVROLET	G20 SPORTVAN (3/4T)	5462	56			
81-83	DODGE	B250 (3/4T)	10031	59	44		
81-83	FORD	E-150 ECONOLINE (1/2-3/4T)	27871	60	57	59	64
81-83	FORD	E-100 ECONOLINE (1/2T)	8915	66			
81-83	CHEVROLET	G20 CHEVYVAN (3/4T)	18743	68	76	84	
81-83	DODGE	B150 (1/2T)	14259	77	81		
81-83	CHEVROLET	G10 CHEVYVAN (1/2T)	12923	82	79		
		PICKUPS					
81-83	**SMALL PICKUPS**		**245250**	**86**	**91**	**90**	**91**
81-83	MAZDA	LONG BED	7548	70			
81-83	VOLKSWAGEN	RABBIT	12578	73	67		
82-83	CHEVROLET	S10	36662	75	81	79	83
81-83	DATSUN	KING CAB	20382	78	85	89	
81-83	DATSUN	KING CAB 4WD	7850	78			
83	FORD	RANGER 4X2	17353	83	90	89	
81-83	FORD	COURIER LONG BED	6289	83			
81-83	TOYOTA	LONG BED	24364	89	95	100	
81-83	FORD	COURIER	7364	89			
81-83	MAZDA	STANDARD BED	6847	89			
81-83	DATSUN	STANDARD BED	13462	89	84		
82-83	GMC	S15	7504	90			
81-83	TOYOTA	LONG BED 4WD	10897	91	108		
81-83	DODGE	D-50	8877	93			
81-83	TOYOTA	STANDARD BED	12240	103	99		
81-83	TOYOTA	STANDARD BED 4WD	10109	112	119		

(See footnotes on page 17)

TABLE 5 (contd)
Relative Claim Frequency by Size of Claim
Personal Injury Protection Coverages —
1981-1983 Vans, Pickups, and Utility Vehicles

MODEL YEARS	MAKE	SERIES	EXPOSURE	ALL	SIZE OF CLAIM >$250	>$500	>$1000
81-83	**STANDARD PICKUPS**		**380858**	**60**	**62**	**64**	**67**
81-83	CHEVROLET	K20 (3/4T)	6453	44			
81-83	FORD	F-250 (3/4T)	11260	45	41		
81-83	FORD	F-150 (1/2-3/4T) 4X4	23860	53	48	48	
81-83	FORD	F-150 (1/2-3/4T)	61058	56	59	64	67
81-83	CHEVROLET	EL CAMINO	14609	56	56		
81-83	CHEVROLET	C20 (3/4T)	10910	58	55		
81-83	CHEVROLET	K10 (1/2T)	16440	58	61	62	
81-83	FORD	F-250 (3/4T) 4X4	7548	58			
81-83	FORD	F-100 (1/2T)	67517	61	62	64	63
81-83	DODGE	D150 (1/2T)	24738	62	69	75	
81-83	GMC	C1500 (1/2T)	23622	64	69	66	
81-83	CHEVROLET	C10 (1/2T)	95111	66	69	68	73
		UTILITY VEHICLES					
81-83	**SMALL UTILITY VEHICLES**		**24434**	**97**	**101**	**106**	
81-83	JEEP	CJ-7	18046	92	90	94	
81-83	JEEP	CJ-5	5925	114			
81-83	**INTERMEDIATE UTILITY VEHICLES**		**51081**	**58**	**59**	**59**	**58**
81-83	JEEP	WAGONEER	7063	46			
81-83	CHEVROLET	K10 BLAZER (1/2T)	10490	58	55		
81-83	FORD	BRONCO	20943	60	62	69	
81-83	**LARGE UTILITY VEHICLES**		**10837**	**43**	**44**		

Results are standardized to the distribution:

Youthful Operator	No Youthful Operator
10%	90%

Minimum Exposure requirements for reporting:

All Claims	—	5,000 Vehicle Years
Claims > $250	—	10,000 Vehicle Years
Claims > $500	—	15,000 Vehicle Years
Claims > $1000	—	25,000 Vehicle Years

Appendix A
Specifications of Injury Coverages

Personal Injury Protection (PIP) Coverages

Personal injury protection coverages provide first-party insurance against medical and other types of losses in "no-fault" states.

The personal injury protection coverages reported in this study were based on data from the 19 states listed below.

Personal Injury Protection (PIP) Coverages
States Included:

Colorado	Minnesota
Connecticut	New Jersey
Delaware	New York
Florida	North Dakota
Georgia	Oregon
Hawaii	Pennsylvania
Kansas	South Carolina
Kentucky	Texas
Maryland	Utah
Michigan	

Appendix B
Method of Data Analysis

Personal Injury Protection Coverages

Results in this report are based on "personal injury protection" (PIP) coverages which are provided in so-called no-fault states. These coverages were selected because they provide medical expense reimbursement to injured occupants of the insured vehicle.

Use of PIP insurance data to identify crashes involving injury has certain limitations because these data cannot provide information on all occupant injuries. This occurs when claims for injury costs are not made under PIP coverages because of the availability of other sources of medical expense reimbursements, such as bodily injury liability and/or health insurance coverages. Consequently, PIP claim frequencies do not include all of the crashes involving injury. This limitation should not distort comparisons among different vehicles.

Vehicle Description and Identification

The Vehicle Identification Numbers (VINs) of most new automobiles sold in the United States are individually unique numbers that contain, in coded form, detailed information as to each vehicle's make, model year, series,* and other distinguishing characteristics.

The very specific vehicle types for which results are presented in this report were derived from the VINs of the individual automobiles.

Only data with valid VINs were used for this report. Each VIN was decoded into a set of specific characteristics. For the purposes of this report the vehicle characteristics of primary concern were make, model year, series, body style, and wheelbase.

Exposure

Exposure, in terms of insured vehicle years, was computed for each individual vehicle from the coverage data. The total number of insured vehicle years for each vehicle series was then obtained by accumulating the exposure for all of the individual vehicles of that vehicle series.

For each vehicle series, the exposure was also computed for each operator age group — youthful operators and no youthful operators.*

Claim Frequency

Both pending and paid claims for an individual vehicle were first matched with its corresponding coverage data to ensure that the crash had occurred within an appropriate period of coverage for that vehicle. In every instance in which multiple claims were made for the same crash — e.g., when more than one occupant of the car incurred medical expenses — the claims were treated as a single injury claim in the calculation of claim frequencies. It should be noted that some medical expenses can sometimes be incurred even though the occupants are not injured. This can occur, for example, when precautionary medical examinations are undertaken even though no injuries are apparent or, in fact, found.

All injury claims involving medical expense reimbursements were used, together with the corresponding exposure, to compute the claim frequencies in terms of the number of claims per 1,000 insured vehicle years. The overall claim frequency results were computed using both paid and pending claims. In addition to the overall claim

*See Appendix C for definitions.

frequency results, separate claim frequency results were computed for claims in which the medical losses exceeded $250, $500, and $1,000. The latter three results provide indications of the extent to which particular cars are over- or under-involved in crashes resulting in more significant injuries. Claims involving non-medical losses only and claims settled without payments were not used. Thus, the claim frequencies represent the number of crashes per 1,000 insured vehicle years in which one or more injuries occurred resulting in medical expense claim payments under PIP insurance coverages.

Standardization

The losses for different vehicles can vary substantially in relation to certain non-vehicle factors. One important factor with which claim frequency varies is the operator age group; and the mix of operator ages can vary considerably among different vehicle types — so considerably that it could distort comparisons of results between vehicles if not taken into account.

Youthful operators have higher insurance claim frequencies than older drivers. Thus, if two vehicle types have different proportions of youthful operators, this difference, if not taken into consideration, would be sufficient to bias comparisons. To remove this effect, the results for each vehicle type were weighted, using the values shown below, to produce a weighted average of the actual results for each operator age group. In this way the results for each vehicle type are based on the same mix, or distribution, of exposure for the two operator age groups.

Since the same weights are used for each vehicle type, the effects due to operator age group are present in equal amounts in the standardized results for each vehicle type. Therefore, to the extent that the age distributions within operator age group do not vary substantially for different vehicles, these effects can no longer bias comparisons among vehicles.

This standardization procedure is widely used in vital health statistics.* The basic principle of this standardization procedure is the introduction of a standard distribution of exposure for the different operator age groups.

Operator Age Group Weights

Youthful Operator	No Youthful Operator	Combined
0.1	0.9	1.0

Exposure Threshold For Reporting Results

A threshold of 5,000 insured vehicle years of exposure was selected for reporting the overall claim frequency results for vehicle size classes, subgroups, and individual vehicle series. Consequently, no results are presented in this report for any of the vehicle series with smaller amounts of exposure. In addition, different thresholds were used to determine whether the claim frequency results for medical losses exceeding the specified dollar amounts were published. In order for the claim frequency results for medical losses exceeding $250 to be published, at least 10,000 insured years of exposure were required; for medical losses of greater than $500, the minimum exposure was 15,000, and for medical losses exceeding $1,000, the minimum exposure was 25,000 insured vehicle years.

It should be kept in mind that, in general, the greater the exposure associated with a reported claim frequency, the more confidence can be placed in it.

---

* For example, see Armitage, P., *Statistical Methods in Medical Research*, Wiley, New York, 1971

Combining Results For More Than One Model Year

The relative injury loss experience of particular vehicles does not change substantially from model year to model year providing that the basic design of the vehicle remains essentially unchanged. For this reason and because substantial amounts of exposure are needed to provide reliable injury claim frequency results, the data for model years 1981 through 1983 were combined for those vehicles whose basic designs remained unchanged.

The aggregated model year result (R) for each vehicle series (i) was obtained by weighting the relative claim frequency for each model year (j) by the applicable exposure for each model year; that is,

$$R_i = \frac{\sum exp_{ij} \frac{f_{ij}}{F_j}}{\sum exp_{ij}} \cdot 100$$

where exp_{ij} = exposure for vehicle i for model year j,

f_{ij} = claim frequency for vehicle i for model year j,

and F_j = claim frequency for all passenger cars for model year j.

Example: Two-Door Honda Civic

	1983	1982	1981
Exposure (exp)	7,985	18,919	40,824
Claim Frequency (f)	24.6	21.4	20.6
Claim Frequency (F) - all cars	19.2	18.2	17.1

$$\text{Result} = \frac{7{,}985\left(\frac{24.6}{19.2}\right) + 18{,}919\left(\frac{21.4}{18.2}\right) + 40{,}824\left(\frac{20.6}{17.1}\right)}{7{,}985 + 18{,}919 + 40{,}824} \cdot 100 = 121$$

Appendix C
Definitions

Claim Frequency — The number of claims for a group of vehicles, divided by the exposure for that group; expressed as claims per one thousand insured vehicle years.

Exposure — The time interval an individual vehicle is insured. Exposure for a group of vehicles is expressed in units of insured vehicle years.

First-Party Coverage — An insurance coverage under which the policyholder collects compensation for his losses from his own insurer regardless of fault.

No-Fault Auto Insurance — An auto insurance plan in which each driver/owner accepts financial responsibility for some or all losses sustained by himself, pedestrians hit by him, and occupants of his own vehicle in return for which he enjoys some immunity from liability for losses to third-party persons.

Operator Age Group — The factor which distinguishes those vehicles whose rated driver is youthful from those vehicles whose rated driver is not youthful (see *Youthful Operator*).

Personal Injury Protection (PIP) Coverage — First-party no-fault coverage in which an insurer pays, within the specified limits, the medical, hospital, and other expenses of the insured, others in his vehicle, and pedestrians struck by him.

Rated Driver — The driver who, for insurance purposes, is considered to represent the greatest loss potential for the insured vehicle.

Vehicle Classifications — There are four vehicle classes, defined as follows:

1. ***Passenger Cars*** — There are four major body style groupings of passenger cars — regular two-door models, regular four-door models, station wagons, and sports or specialty models. Each body style group is further divided into size class subgroups as follows:

   Small Subcompact — Cars with wheelbases less than or equal to 96 inches.

   Subcompact — Cars with wheelbases greater than 96 inches and less than or equal to 101 inches.

   Small Compact — Cars with wheelbases greater than 101 inches and less than or equal to 106 inches.

   Compact — Cars with wheelbases greater than 106 inches and less than or equal to 111 inches.

   Large — Vehicles with wheelbases greater than 111 inches.

2. ***Vans*** — Fully enclosed vehicles with either no hood or a very short hood, in which the engine is placed at least 50 percent behind the windshield. The driver's position is usually well forward, nearly beside the engine, usually within the forward 25% of the wheelbase. These vehicles are designed for cargo transport and are equipped with a right side cargo access door and rear doors. The cargo area is not separated from the passenger area — both are enclosed under the same roof. Some passenger vans are equipped with additional seats in the cargo area and usually have additional side windows also.

3. ***Pickups*** — Cargo-carrying vehicles, usually on a truck chassis, with an enclosed cab and a separate open cargo area. The open cargo area generally is a box with raised sides with an opening tailgate. There are also a small number of auto pickups which are similar to regular pickups except that they are built on a passenger car chassis. Pickups are further divided into two subgroups based on curb weight — small pickups (less than 3,000 pounds) and standard pickups (3,000 pounds or more).

4. ***Utility Vehicles*** — Vehicles built on a heavy-duty chassis capable of off-road use. They are of conventional construction with the driver behind the engine. The cargo and passenger areas are integral with the driver area. Many of these vehicles are equipped with soft or removable tops. Frequently, these vehicles are equipped with four-wheel drive. Utility vehicles are further divided into three subgroups based on wheelbase — small utility vehicles (less than 100 inches), intermediate utility vehicles (from 100 to 120 inches), and large utility vehicles (greater than 120 inches).

Vehicle Identification Number (VIN) — A code, variously comprising both numbers and letters; normally 8 to 17 characters in length, assigned to each vehicle by its manufacturer. The VIN uniquely identifies the vehicle within at least a ten-year time span and, in recent model year vehicles, almost always contains coding which identifies the make, series, model year, and other characteristics of each vehicle.

Vehicle Series — A name denoting a family of vehicles, within a make, with the same wheelbase and a degree of commonality in construction such as body, chassis, etc.

Youthful Operator — For the purposes of this report, all males (married or single) under 25 years of age and all unmarried females under 25 years of age.

Appendix D
Vehicle Series Designations

Part A: Passenger Cars

Make and Model		2-Door Model	4-Door Model	Station Wagon	Sports/ Specialty
Alfa Romeo	GTV6				SS
	Spider Veloce				SS
American	Concord		C	C	
	Eagle		C	C	
	Eagle 50 Liftback	S			
	Spirit Liftback	SS			
Audi	4000	S	S		
	5000				SC
BMW	320i				S
	528e				SC
	533i*				SC
	633 CSI				SC
	733i				C
Buick	Century**	SC	SC		
	Electra	L	L	L**	
	LeSabre	L	L	L	
	Regal	C	C	C	
	Riviera				L
	Riviera Convertible**				L
	Skyhawk	SC**	SC**	SC**	
	Skylark	SC	SC		
Cadillac	Brougham-2 Dr. & 4 Dr.				L
	Cimarron**				SC
	DeVille-2 Dr. & 4 Dr.				L
	Eldorado				L
	Fleetwood Limousine				L
	Seville				L
Chevrolet	Camaro**				S
	Caprice	L	L	L	
	Cavalier**	SC	SC	SC	
	Celebrity**	SC	SC		
	Chevette	SS	S		
	Citation	SC	SC		
	Corvette				S
	Impala		L		
	Malibu		C	C	
	Monte Carlo				C
Chrysler	Cordoba				L
	E Class*		SC		
	Imperial				L
	Le Baron**	S	S	S	

(See footnotes on page 27)

Appendix D
Vehicle Series Designations
(Continued)

Part A: Passenger Cars (Continued)

Make and Model		2-Door Model	4-Door Model	Station Wagon	Sports/ Specialty
Chrysler (cont'd)	Le Baron Convertible**				S
	New Yorker*		SC		
	New Yorker 5th Avenue**		L		
Datsun/Nissan	200 SX	SS			
	280 ZX				SS
	280 ZX 2+2				S
	810		SC	SC	
	Pulsar*	SS	SS		
	Sentra**	SS	SS	SS	
	Stanza**	S	S		
Dodge	400**	S	S		
	400 Convertible**				S
	600*		SC		
	Aries	S	S	S	
	Challenger	S			
	Colt	SS	SS**		
	Diplomat		L		
	Mirada				L
	Omni/Charger	S	S		
Fiat	Spider 2000				SS
	X 1/9				SS
Ford	Crown Victoria	L	L	L	
	Escort	SS	SS*	SS	
	EXP**				SS
	Futura	SC	SC		
	LTD*		SC	SC	
	Mustang	S			
	Mustang Convertible*				S
	Thunderbird*				SC
Honda	Accord**	S	S		
	Civic	SS	SS	SS	
	Prelude*				S
Isuzu	Impulse*				S
	T-Car/I-Mark	SS	SS		
Jaguar	XJ6				L
	XJS*				SC
Lincoln	Continental**				C
	Mark VI-2 Dr. & 4 Dr.				L
	Town Car				L

(See footnotes on page 27)

Appendix D
Vehicle Series Designations
(Continued)

Part A: Passenger Cars (Continued)

Make and Model		2-Door Model	4-Door Model	Station Wagon	Sports/ Specialty
Mazda	626**	S	S		
	GLC	SS	SS	SS	
	RX-7				SS
Mercedes Benz	240D				C
	300CD				C
	300D				C
	300SD				L
	300TD				C
	380SEC**				L
	380SEL				L
	380SL Coupe				S
Mercury	Capri	S			
	Cougar XR-7*				SC
	Grand Marquis	L	L	L	
	LN7**				SS
	Lynx	SS	SS**	SS	
	Marquis*		SC	SC	
	Zephyr	SC	SC		
Mitsubishi*	Cordia	S			
	Starion				SS
	Tredia		S		
Oldsmobile	Ciera**	SC	SC		
	Custom Cruiser			L	
	Cutlass	C	C	C	
	Delta 88	L	L		
	Firenza	SC**	SC**	SC*	
	Ninety-Eight	L	L		
	Omega	SC	SC		
	Toronado				L
Peugeot	504			L	
	505		C		
	604				C
Plymouth	Champ/Colt	SS	SS**		
	Gran Fury**		L		
	Horizon/Turismo	S	S		
	Reliant	S	S	S	
	Sapporo	S			
Pontiac	1000	SS	S		
	2000**	SC	SC	SC	
	6000**	SC	SC		
	Bonneville		C	C	

(See footnotes on page 27)

Appendix D
Vehicle Series Designations
(Continued)

Part A: Passenger Cars (Continued)

Make and Model		2-Door Model	4-Door Model	Station Wagon	Sports/ Specialty
Pontiac (cont'd)	Firebird**				S
	Grand Prix				C
	Phoenix	SC	SC		
Porsche	911 Coupe				SS
	928 Coupe				S
	944 Coupe*				SS
Renault	18i		S	S	
	Alliance*	S	S		
	Fuego**	S			
	Le Car	SS	SS		
Saab	900	S	S		
Subaru	DL/GL(F)	S	S	S	
	DL/GL 4WD			S	
	Standard	SS			
	Standard 4WD	SS			
Toyota	Camry*		SC		
	Celica**	S			
	Celica Supra**				SC
	Corolla	SS	SS	SS	
	Corolla Tercel*	SS	SS		
	Corolla Tercel 4WD*			SS	
	Cressida		SC	SC	
	Starlet	SS			
Volkswagen	Jetta	SS	SS		
	Quantum**	S	S	S	
	Rabbit	SS	SS		
	Rabbit Convertible				SS
	Scirocco**	SS			
Volvo	240	SC	SC	SC	
	760*				C

SS - Small Subcompact-Wheelbase less than or equal to 96 inches
S - Subcompact-Wheelbase greater than 96 and less than or equal to 101 inches.
SC - Small Compact-Wheelbase greater than 101 and less than or equal to 106 inches.
C - Compact-Wheelbase greater than 106 and less than or equal to 111 inches.
L - Large-Wheelbase greater than 111 inches.

*-1983 Models Only
**-1982 and 1983 Models Only

Models contributing less than 100 insured vehicle years of exposure are not listed.

Appendix D
Vehicle Series Designations
(Continued)

Part B: Vans, Pickups, and Utility Vehicles

Vehicle Class	Make	Series
Vans	Chevrolet	G10 Chevyvan (1/2T)
		G20 Chevyvan (3/4T)
		G10 Sportvan (1/2T)
		G20 Sportvan (3/4T)
	Dodge	B150 (1/2T)
		B250 (3/4T)
		B150 Wagon/Bus (1/2T)
		B250 Wagon/Bus(3/4T)
	Ford	E-150 Club Wagon (1/2-3/4T)
		E-250 Club Wagon (3/4T)
		E-100 Econoline (1/2T)
		E-150 Econoline (1/2-3/4T)
		E-250 Econoline (3/4T)
	GMC	G1500 Rally Wagon (1/2T)
		G2500 Rally Wagon (3/4T)
		G1500 Vandura (1/2T)
		G2500 Vandura (3/4T)
	Plymouth	PB150 Voyager (1/2T)
		PB250 Voyager (3/4T)
	Volkswagen	Vanagon
Pickups	Chevrolet	C10 (1/2T)
		C20 (3/4T)
		El Camino
		K10 (1/2T)
		K20 (3/4T)
		S10**
		S10 4WD*
	Datsun	King Cab
		King Cab 4WD
		Standard Bed
		Standard Bed 4WD
		Stretch
		Stretch 4WD
	Dodge	D-50
		D50 4WD**
		D150 (1/2T)
		D250 (3/4T)
		Rampage**
		W150 (1/2T)
		W250 (3/4T)
	Ford	Courier
		Courier Long Bed
		F-100 (1/2T)
		F-150 (1/2-3/4T)
		F-150 (1/2-3/4T) 4WD
		F-250 (3/4T)
		F-250 (3/4T) 4WD
		Ranger*
		Ranger 4WD*
	GMC	Caballero
		C1500 (1/2T)
Pickups (cont'd)	GMC	C2500 (3/4T)
		K1500 (1/2T)
		K2500 (3/4T)
		S15**
		S15 4WD*
	Isuzu	Long Bed
		Standard Bed
		Standard Bed 4WD
	Jeep/AMC	J10 (1/2 T)
		J20 (1/2-3/4T)
		Scrambler
	Mazda	Long Bed
		Standard Bed
	Mitsubishi	2WD*
		4WD*
	Subaru	Brat
	Toyota	Long Bed (1/2T)
		Long Bed (1/2T) 4WD
		Long Bed (3/4T)
		Standard Bed
		Standard Bed 4WD
	Volkswagen	Rabbit
Utility Vehicles	Chevrolet	C10 Suburban (1/2T)
		C20 Suburban (3/4T)
		K10 Blazer (1/2T)
		K10 Suburban (1/2T)
		K20 Suburban (3/4T)
		S10 Blazer*
		S10 Blazer 4WD*
	Dodge	AD150 Ramcharger (1/2T)
		AW150 Ramcharger (1/2T)
	Ford	Bronco
	GMC	C1500 Suburban (1/2T)
		C2500 Suburban (3/4T)
		K1500 Jimmy (1/2T)
		K1500 Suburban (1/2T)
		K2500 Suburban (3/4T)
		S15 Jimmy*
		S15 Jimmy 4WD*
	Jeep AMC	Cherokee
		CJ-5
		CJ-7
		Wagoneer
	Toyota	Land Cruiser
		Land Cruiser S/W

* 1983 Models Only
** 1982 and 1983 Models Only

Models contributing less than 100 insured vehicle years of exposure are not listed.

List of Publications

Research reports published by the Highway Loss Data Institute are:

R72-1 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1972 Models*, June 1973.

R73-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1973 Models Compared with 1972 Models*, September 1973.

R73-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models*, March 1974.

R73-3 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models During Their First Two years*, December 1974.

R73-4 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1973 Models During Their First Three Years*, December 1975.

R74-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1974 Models*, May 1974.

R74-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1974 Models During Their First Year*, December 1974.

R74-3 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1974 Models During Their First Two Years*, December 1975.

R75-1 *Automobile Insurance Losses, Collision Coverages, Initial Results for 1975 Models*, July 1975.

R75-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1975 Models During Their First Year*, December 1975.

R76-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1976 Models*, June 1976.

R76-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1976 Models During Their First Year, 1975 Models During Their First Two Years, 1974 Models During Their First Three Years*, December 1976.

R77-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1977 Models*, June 1977.

R77-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1977 Models During Their First Year, 1976 Models During Their First Two Years, 1975 Models During Their First Three Years*, December 1977.

R78-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1978 Models*, June 1978.

R78-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1978 Models During Their First Year, 1977 Models During Their First Two Years, 1976 Models During Their First Three Years*, January 1979.

R79-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1979 Models*, June 1979.

R79-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1979 Models During Their First Year, 1978 Models During Their First Two Years, 1977 Models During Their First Three Years*, December 1979.

R80-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1980 Models*, June 1980.

R80-2 *Automobile Insurance Losses, Collision Coverages; Variations by Make and Series, 1980 Models During Their First Year, 1979 Models During Their First Two Years, 1978 Models During Their First Three Years*, December 1980.

R81-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1981 Models*, July 1981.

R81-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years*, December 1981.

R82-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1982 Models*, July 1982.

R82-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1982 Models During Their First Year, 1981 Models During Their First Two Years; 1980 Models During Their First Three Years*, December 1982.

R83-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1983 Models*, June 1983.

R83-2 *Insurance Losses, Collision Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1983 Models During Their First Year, 1982 Models During Their First Two Years, 1981 Models During Their First Three Years*, January 1984.

R84-1 *Automobile Insurance Losses, Collision Coverages; Initial Results for 1984 Models*, June 1984.

V78-1 *Automobile Insurance Losses, Non-Commercial Collision Coverages; Variations by Make and Series, Vans, Pickups and Utility Vehicles; 1978 Models During Their First Year, 1977 Models During Their First Two Years*, February 1979.

V79-1 *Automobile Insurance Losses, Non-Commercial Collisions Coverages; Variations by Make and Series, Vans, Pickups and Utility Vehicles; 1979 Models During Their First Year, 1978 Models During Their First Two years*, April 1980.

V79-2 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results by Size of Claim for 1977, 1978, and 1979 Vans, Pickup Trucks, and Utility Vehicles*, October 1980.

V79-3 *Insurance Theft Losses; Vans, Pickups, and Utility Vehicles, 1979 Models*, May 1981.

V80-1 *Automobile Insurance Losses, Non-Commercial Collision Coverages; Variations by Make and Series, Vans, Pickups, and Utility Vehicles; 1980 Models During Their First Year, 1979 Models During Their First Two Years, 1978 Models During Their First Three Years*, December 1980.

V80-2 *Automobile Insurance Losses, Personal Injury Protection Coverages; Injury Claim Frequency Results by Size of Claim; Vans, Pickup Trucks, and Utility Vehicles, 1977-1980 Models*, September 1981.

I75-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974 and 1975 Models*, June 1976.

I75-2 *Automobile Insurance Losses, Percentage of Collision Claims with Associated Injury Claims for 1974 and 1975 Models*, March 1977.

I76-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974, 1975, and 1976 Models*, November 1977.

I76-2 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1974, 1975, and 1976 Models*, September 1978.

I77-1 *Automobile Insurance Losses, Injury Coverages; Claim Frequency Results for 1977 Models*, September 1978.

I78-1 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results for 1977 and 1978 Models*, September 1979.

I79-1 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results by Size of Claim for 1977, 1978, and 1979 Models,* October 1980.

I80-1 *Automobile Insurance Losses, Personal Injury Protection Coverages; Claim Frequency Results by Size of Claim; 1978-1980 Models,* September 1981.

I81-1 *Insurance Losses, Personal Injury Protection Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles,* September 1982.

I82-1 *Insurance Losses, Personal Injury Protection Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles,* September 1983.

I83-1 *Insurance Losses, Personal Injury Protection Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles,* September 1984.

A-1 *Automobile Insurance Losses, Collision Coverages; A Comparison of Results for 1972 and 1973 Models,* May 1974.

A-2 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Density, 1972 and 1973 Models,* September 1974.

A-3 *Automobile Insurance Losses, Collision Coverages; A Comparison of Results for 1973, 1974 and 1975 Models,* July 1975.

A-4 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Density, 1974 and 1975 Models,* December 1975.

A-5 *Automobile Insurance Losses, Collision Coverages; Relationships Between Losses and Vehicle Body Style, 1974 and 1975 Models,* December 1975.

A-6 *Automobile Insurance Losses, Collision Coverages; An Investigation of Relationships Between Losses and Engine Specifications, Using 1973 Models,* June 1976.

A-7 *Automobile Insurance Losses, Collision Coverages; Annual Increases and Seasonal Variations 1972, 1973, 1974 and 1975 Models,* June 1976.

A-8 *Automobile Insurance Losses, Injury Coverages; A Preliminary Comparison of Results for Volkswagen Rabbits with Passive and Active Seat Belts, 1975 and 1976 Models,* June 1977.

A-9 *Automobile Insurance Losses, Collision Coverages; A Comparison of Collision Claim Size Distributions for 1974, 1975, and 1976 Models,* November 1977.

A-10 *Automobile Insurance Losses, Injury Coverages; Comparisons of Claim Frequencies of Volkswagen Rabbits with Automatic and Manual Seat Belts, 1975, 1976, and 1977 Models,* June 1979.

A-11 *Automobile Insurance Losses, Collision Coverages; The Consistency of the Loss Experience of Specific Vehicles Produced in Several Years, 1975 to 1978 Models,* June 1979.

A-12 *Automobile Insurance Losses, Collision Coverages; An Assessment of the Effects of the Federal Safety Bumper Standard on the Losses for 1972 Through 1978 Models,* June 1980.

A-13 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverages; The Effects of Car Size on Crash Losses, 1977-1980 Models,* May 1981.

A-14 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverages; Comparisons of the Loss Experience of Two- and Four-Door Cars, 1978, 1979, and 1980 Models,* June 1981.

A-15 *Automobile Insurance Losses, Personal Injury Protection and Collision Coverages; Relationships Between Injury and Collision Losses and Engine Options for Selected 1977-1979 Compact Cars,* June 1981.

A-16 *Automobile Insurance Losses, Collision Coverages; The Frequency of Claims Involving Salvage; Subcompact and Compact Cars; 1980 Models,* January 1982.

A-17 *Insurance Losses, Comprehensive Coverages; Non-Crash Fire Losses; 1979-1980 Models,* February 1982.

A-18 *Insurance Losses, Theft Coverages; The Distribution of Theft Loss Payment Amounts; Passenger Cars, Vans Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years; 1979 Models During Their First Three Years,* June 1982.

A-19 *Insurance Losses, Theft Coverages; A Comparison of the Theft Loss Experience of General Motors Passenger Cars With and Without Factory-Installed Theft Deterrent Systems; 1980-1981 Models,* January 1983.

A-20 *Insurance Losses, Collision Coverages, A Comparison of the Collision Loss Experience of Subaru Models with 5 and 2.5 MPH Bumpers,* April 1983.

A-21 *Insurance Losses, Personal Injury Protection Coverages, Injury Claim Frequencies for Volkswagen Rabbits with Automatic and Manual Seat Belts, 1981 and 1982 Models,* April 1984.

A-22 *Insurance Losses, Collision Coverages, An Analysis of Salvage Credits, 1977 Through 1982 Model Year Cars,* July 1984.

T79-1 *Automobile Insurance Theft Losses by Make and Series; 1979 Models,* June 1980.

T80-1 *Automobile Insurance Theft Losses by Make and Series; 1979 and 1980 Models,* April 1981.

T81-1 *Insurance Losses, Theft Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1981 Models During Their First Year, 1980 Models During Their First Two Years, 1979 Models During Their First Three Years,* May 1982.

T82-1 *Insurance Losses, Theft Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1982 Models During Their First Year, 1981 Models During Their First Two Years, 1980 Models During Their First Three Years,* May 1983.

T83-1 *Insurance Losses, Theft Coverages; Passenger Cars, Vans, Pickups, and Utility Vehicles; 1983 Models During Their First Year, 1982 Models During Their First Two Years, 1981 Models During Their First Three Years,* May 1984.